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Application Number	09/670,189
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First Named Inventor	WHEAT et al.
Art Unit	1762
Examiner Name	Cleveland
Attorney Docket Number	13DV-13658/11593 (21635-0026)

Total Number of Pages in This Submission

18

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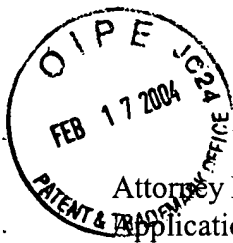
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Attorney Docket No. 13DV-13658/11593 (21635-0026)  
Application No. 09/670,189

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of WHEAT et al.	)	
	)	Group Art Unit: 1762
Application No.: 09/670,189	)	
	)	Examiner: Cleveland
Filed: September 26, 2000	)	
	)	
For: METHOD FOR VAPOR PHASE ALUMINIDING INCLUDING A MODIFYING ELEMENT		

APPLICANT'S REPLY

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Sir:

Applicant replies to the Examiner's position set forth in Response to the Argument of the Appeal Brief.

Issue 1, claims 1-2

The Examiner's Answer introduces some new terminology, "notoriously well known," see for example, three lines from the bottom of page 4 of the Examiner's Answer, which is not found in the earlier office actions. From the Response set forth at pages 15-24 of the Examiner's Answer, it is clear that the introduction of this new language is meant to suggest a scope of generalized "well known" prior art beyond that found in the applied references. Applicant traverses such a position and requests that the Examiner apply a statutory prior art reference to support the positions, if they are maintained. MPEP 2144.03.

As the Board reads through the reply arguments of the Examiner's Answer at pages

15-24, it will see that it is admitted that the applied references do not teach the present claim limitations. Instead, the new strategy of the rejections is to make broad assertions as to what is “notoriously well known”, and to argue that the applied references were chosen just to illustrate examples of this “notoriously well known” art. The suggestion is that the Board should base its analysis on the alleged “notoriously well known” prior art rather than the cited and applied prior art references.

See, for example, the two sentences beginning three lines from the end of page 15 and extending to page 16, line 5: “Basta is cited primarily fluorides are notoriously well known in the art of CVD as suitable metal halide precursors. The Examiner chose Basta ‘963 as the particular reference to demonstrate this well known fact...”. In fact, what Basta ‘963 teaches is that it is known to use aluminum trifluoride, but neither Basta, nor any of the other references, say a single word or have a single teaching about zirconium, hafnium, or yttrium fluorides or iodides, which is what is recited in the claims.

And at page 17, lines 2-3 of the Examiner’s Answer: “Smith ‘400 is cited merely to demonstrate the notoriously well known method of providing metal halides [n.b., no mention of “zirconium fluoride” or “hafnium fluoride” or other compounds within the scope of the present claims] by evaporating them from solid or liquid form.” (Bracketed material added). Then at page 17, lines 8-11, it is stated: “The Examiner acknowledges that Smith ‘400 does not use the metal halides [again, no mention of “zirconium fluoride” or “hafnium fluoride”] in the same reaction as that of Warnes ‘733, but such would not have disguised the teachings of method of providing metal halide [yet again, no mention of “zirconium fluoride” or “hafnium fluoride”] for which it is cited.” (Bracketed material and underlines added) This statement also enunciates a new standard of obviousness--as long as the reference does not “disguise” its teachings, it need not actually teach the recited claim limitation.

The “notoriously well known” argument is first propounded in the Examiner’s Answer--it was never used during prosecution. The Board may wish to ask itself why this new, legally unsupported strategy was introduced only in the Examiner’s Answer, and never during earlier prosecution. Applicant believes that it is a desperation tactic adopted

in response to the recognition that the prior art references do not come close to teaching the present invention.

This new “notoriously well known” strategy of the Examiner’s Answer is not the way the legal concept of “prior art” works. The references teach the prior art to the extent that it is known. The applied references are not narrow examples of some “notoriously well known” generalization that can be whatever the Examiner wants it to be, and that is being postulated in the absence of relevant teachings. If the Examiner had some art that teaches the use of zirconium, hafnium, or yttrium fluoride or iodide in the present context, it should have, and presumably would have, been made of record.

Basta ‘963 teaches an approach that is unrelated to that of Warnes ‘733. The Examiner’s argument is that because aluminum trifluoride is known in unrelated contexts from Basta ‘963, it must be known to use hafnium fluorides and zirconium fluorides because hafnium halides and zirconium halides are known. The Examiner notes that there are only five varieties of halides, and it is obvious to pick the fluorides from that group. No evidence is submitted to establish that the five types of halides are equivalent and perform in an equivalent manner in the context of the present claims, or that a person of ordinary skill would pick the fluorides, which is what the Examiner is attempting to establish by this argument.

The present application explicitly excludes a portion of the halides, so that under the Examiner’s hypothesis the person of ordinary skill would also have had to know to exclude those elements. The Examiner seeks to dismiss the explicit statements in the present Specification that, “The chlorides and bromides of the modifying element are not within the scope of the present invention, as they are not thermodynamically and kinetically suitable.” and “The iodides of the modifying elements may be used in some circumstances, but the chlorides and bromides are unsuitable and may not be used.”

The Examiner goes too far in his attempt to misstate the scope of the prior art, by accusing the Applicant of making false statements in the present application. It is asserted (Examiner’s Answer, page 16, lines 20-21) that “...Applicant’s statement at p. 4, lines 8-10 is contradicted by the evidence of record...” based upon Warnes ‘733. This accusation of

false statements in the present application in an attempt to prejudice the Board against Applicant, based upon what Warnes states in an unrelated technology, is absolutely outrageous. Warnes does not disclose or teach the presently claimed invention or anything remotely similar. If it did, there would have been a Section 102 rejection and not an attempt to create a convoluted Section 103 rejection based upon three unrelated references. The statements in Warnes about what works in Warnes' approach do not relate at all to the presently claimed approach, and do not "contradict" the present application.

Here is what Warnes '733 teaches. Warnes '733 teaches (col. 6, lines 12-37) depositing an aluminum-containing layer by passing a mixture of hydrogen and hydrogen chloride gases over a metallic source of aluminum and a source of silicon to produce a mixture of aluminum trichloride and silicon tetrachloride. Separately, a mixture of argon and hydrogen chloride gases are flowed over a hafnium/zirconium bed (hafnium and zirconium are the modifying elements) to form a gaseous mixture containing hafnium tetrachloride gas and zirconium tetrachloride gas. The two gas mixtures, one containing aluminum trichloride and silicon tetrachloride, and the other containing hafnium tetrachloride gas and zirconium tetrachloride gas, are introduced concurrently into a coating retort that contains the article to be coated. There are no solid aluminum halides or solid fluorides or iodides of a modifying element in the approach of Warnes, as recited in the present claims. Warnes teaches that the aluminum trichloride, the hafnium tetrachloride, and the zirconium tetrachloride are never in a solid form, directly contrary to the recitations of the claims. What Warnes teaches is not remotely similar to what the present claims recite.

Warnes' teaching of the use of chlorides is a direct teaching away from the presently claimed approach. It is a well-established principle of law that a prima facie case of obviousness may not properly be based on a reference which teaches away from the present invention as recited in the claims.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be...led in a direction divergent

from the path that was taken by the applicant. In re Sponnoble, 160 USPQ 237, 244 (CCPA 1969)...As “a useful general rule,”...“a reference that ‘teaches away’ can not create a prima facie case of obviousness.” In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)”

In this case the primary references, Warnes, requires the use of chlorides of the modifying element (i.e., hafnium tetrachloride and zirconium tetrachloride), while the present approach is limited to fluorides and iodides of the modifying elements and excludes the chlorides. Warnes is therefore not properly applied as a Section 103 reference.

In short, Warnes starts with solid aluminum and solid hafnium/zirconium. The presently claimed approach, to the contrary, starts with a solid aluminum halide and a solid fluoride or a solid iodide of the modifying element. Chlorides apparently work for Warnes’ approach. They do not work in the present approach, as the Applicants stated.

There is such a thing as wanting to win too badly, and that line has been crossed by the demonstrably incorrect accusation of false statements found in the Examiner’s Answer.

The Examiner goes on to argue that Smith is analogous prior art, when it clearly is not. Warnes and Basta deal with deposition of metal aluminides on metal substrates. Smith deals with the deposition of aluminum oxide on a cemented carbide substrate. Smith is not even attempting to deposit the same type of material as Warnes, Basta, and the present approach, and Smith uses a completely different type of chemistry, see col. 5, lines 14-37 of Smith. From Smith, those of ordinary skill in the art learn to deposit kappa aluminum oxide. You can’t deposit kappa aluminum oxide from the approaches of Warnes or Basta, or from the present approach.

If the references are applied for what they teach, the position of the Examiner’s Answer is in agreement with Applicant’s position, specifically that none of the references teach “a solid fluoride or a solid iodide of a modifying element as a source of the modifying element, the modifying element being selected from the group consisting of zirconium, hafnium, and yttrium, and combinations thereof” as recited in claim 1. The closest that the Examiner’s Answer can come is that Basta teaches “aluminum fluoride” and “hafnium

halides” and “zirconium halides”, which is not what the claims recite. As discussed at length in the Appeal Brief, the present application carefully explained why the different halides are not equivalents of each other in the presently claimed process, so the argument of the Examiner’s Answer just doesn’t establish the viability of the rejection.

Claim 1 recites “a solid fluoride or a solid iodide of a modifying element...selected from the group consisting of zirconium, hafnium, and yttrium...”. The Examiner’s Answer straightforwardly admits that Warnes ‘733 has no such teaching. It then argues that Smith ‘400 has such a teaching. Smith ‘400 absolutely has no such teaching. Smith ‘400 never even mentions zirconium, hafnium, or yttrium fluorides or iodides, much less having any teaching of those compounds in a solid form.

The primary thrust of the argument of the Examiner’s Answer is found in the full paragraph on page 5 of the Examiner’s Answer. The gist of the argument is to produce a teaching of “hafnium or zirconium fluoride” from three references that do not mention “hafnium or zirconium fluoride” in any way and in any context. When a claim contains such a specific recitation as found in claim 1, it could be expected that one of the references would at least teach the specific compound.

In regard to claim 1 and presented in several locations of the Examiner’s Answer, there is reference to case authority to support the proposition that “The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness.” In this and the other locations, this argument is used to suggest that the references teach something more than they in fact teach. If the actual teachings of the references are applied, they do not teach the present approach.

Issue 1, claim 4

The combination of references does not teach the limitations of the parent claim 1, as discussed above. Further, claim 4 recites “the aluminum halide is aluminum trifluoride”, referring to the “solid aluminum halide” recited in claim 1. Basta teaches gaseous aluminum trifluoride, not solid aluminum trifluoride.

The matter of arguments against individual references has been addressed above.

Issue 1, claim 5



The combination of references does not teach the limitations of the parent claim 1, as discussed above. Further, claim 5 recites in part “the fluoride of the modifying element is used, and the fluoride of the modifying element is a tetrafluoride of the modifying element”, meaning that the solid form of the modifying element in claim 1 is a solid tetrafluoride of the modifying element. The Examiner’s Answer addresses oxidation numbers, without any mention of the actual claim limitation and without controverting Applicant’s position that the claim limitation is not taught in the art.

The matter of arguments against individual references has been addressed above.

Issue 1, claim 6

The combination of references does not teach the limitations of the parent claim 1, as discussed above. Claim 6 incorporates the limitations of claim 1. As noted in the Appeal Brief, this rejection argues that it would be obvious to remove the solid aluminum in order to teach the limitations of claim 1, but then return to the solid aluminum in order to teach the limitations of claim 6. As discussed in the Appeal Brief, the approach proposed in forming the rejection is not technically possible. The Examiner’s Answer argues that both would be present, but that is not possible.

The Examiner’s Answer then argues that Warnes teaches that it would be obvious to use two different types of sources together. No location in any of the references has been identified in support of this position, and in fact there is no such teaching. As Applicant demonstrated in the Appeal Brief, which is not contradicted in the Examiner’s Answer, the two proposed processes are technically incompatible. The Examiner’s Answer argues that the two proposed processes would be performed at different locations, but there is no such teaching in the prior art.

The argument here is that those skilled in the art would know, even though there is no teaching in the prior art, to adopt whatever contrived approach that can be developed in hindsight in a later attempt to reject a claim. To the contrary, if the Examiner postulates that those skilled in the art would know to take a particular path, such as two different types of incompatible sources in two different containers, then there must be such a teaching in the prior art.

The Examiner's Answer concludes its argument by asserting that, "one of ordinary skill in the art would have assumed that the reaction of aluminum and HF would have taken place at the sublimation/evaporation temperature of aluminum trifluoride. Applicant has provided no evidence to the contrary." Applicant did in fact provide evidence to the contrary--Applicant pointed out that Basta teaches that the reaction of aluminum and HF occurs at about 90°C (Basta, col. 4, lines 39-40), well below the sublimation/evaporation temperature of aluminum trifluoride, which is over 1000°C.

Applicant does not know what to make of the arguments regarding suspenders and belts, and will leave that for the Board to sort out.

Issue 1, claim 7

The combination of references does not teach the limitations of the parent claim 1, as discussed above. Claim 7 incorporates the limitations of claim 1. As noted in the Appeal Brief, this rejection argues that it would be obvious to remove the solid modifying element in order to teach the limitations of claim 1, but then return the solid modifying element in order to teach the limitations of claim 1. There is no reason to do this, and the applied prior art certainly has no such teaching.

Issue 1, claim 8

The combination of references does not teach the limitations of the parent claim 1, as discussed above. The argument of the Examiner's Answer admits the absence of a teaching of the claim limitation, referring only to "hafnium and zirconium chloride", not the "the solid fluoride or the solid iodide of the modifying element" as recited in claim 8.

It is asserted that, "Applicant's argument that none of the references has any teaching of a solid (hafnium or zirconium) (fluoride or iodide) is unconvincing because it does not address the combination of references, as discussed in detail above regarding claim 1." Applicant and the Board are still awaiting some showing that any of the references, in alone or in combination, has a teaching of a solid (hafnium or zirconium) (fluoride or iodide).

Applicant certainly did address the combination of references in the Appeal Brief--the references in combination do not have this teaching. The application of three

references, none of which teaches the claim limitation, does not magically make that teaching of the claim limitation appear. The Examiner's reliance on the combination of the teachings of the three references is based upon the hope that the Board will adopt the "notoriously well known" theory of the rejection and broaden the scope of the prior art far beyond what the three applied references actually teach.

Issue 1, claim 9

The combination of references does not teach the limitations of the parent claim 1, as discussed above. The argument of the Examiner's Answer does not disagree with or contradict Applicant's position that the approach proposed in the explanation of the rejection is not technically possible, but makes an argument about where the precursors react and that "the hafnium and/or zirconium fluoride must directly contact the surface" [emphasis added]. That is not at all the situation, as the argument on the same page of the Examiner's Answer (incorrectly) argues that the references teach just the opposite, that the solids do not contact the surface.

The argument of the Examiner's Answer is that claim 9 "is open to the possibility that it is the gaseous fluoride or iodide that is applied directly to the article surface." A discussion of claim construction may be in order. Claim 9 recites that, "the step of preparing the coating source includes the step of providing the fluoride or the iodide of the modifying element applied directly to the article surface." In the step of "preparing" in claim 1, the fluoride or iodide is expressly recited to be in solid form, and therefore the fluoride and iodide of claim 9 must be in solid form. A gas is not produced until the step of "producing". The argument of the Examiner's Answer is not correct.

Issue 1, claim 10

The combination of references does not teach the limitations of the parent claim 1, as discussed above. As discussed earlier, the thrust of the rejection is to attempt to read something into the three references that is not taught there. Applicant clearly distinguished the halide forms taught by the references. There simply is no teaching in the references of the forms recited in claim 10.

In response to the Examiner's Answer, there has been no showing of a location

where there is a teaching of solid zirconium fluoride or iodide.

Issue 1, claim 11

The combination of references does not teach the limitations of the parent claim 1, as discussed above. As discussed earlier, the thrust of the rejection is to attempt to read something into the three references that is not taught there. Applicant clearly distinguished the halide forms taught by the references. There simply is no teaching in the references of the forms recited in claim 11.

In response to the Examiner's Answer, there has been no showing of a location where there is a teaching of solid hafnium fluoride or iodide.

In regard to all of the rejections, the Appeal Brief at pages 9-10 pointed out that there was set forth no objective basis for combining the teachings of the references. There was no response to this legal and MPEP authority, and no attempt to provide any objective basis for combining the teachings of the references. The thrust of the rejections is to try to blur the distinctions between the different types of halides and to try to create the "notoriously well known" prior art where none in fact exists. The fact is that there just isn't any teaching of the recited claim limitations, if one reads the actual teachings of the references. The references have teachings of all sorts of other compounds used in all sorts of situations, but they never teach any that are within the scope of the claims. For example, Warnes and Basta teach deposition upon metallic alloys, and Smith teaches deposition on cemented carbides, which are nonmetallic and completely different in character than the metallic alloys. Why would a person of ordinary skill be motivated to attempt to combine teachings of Smith in the unrelated context of Warnes and Basta? In this situation, where the teachings of three unrelated references, all using different deposition approaches, are combined to make something "obvious", it is incumbent upon the Examiner to identify the objective rationale that would be used by a person of ordinary skill in the art, to combine the references to produce the recited compounds, and there is none here.

For example, claim 1 recites in part: "heating the coating gas and the article to a coating temperature of at least about 1850°F". Basta '963 teaches a temperature range of

820-900°C (1508-1652°F), see col. 7, lines 39-40, which is below the claim range. The only reason for picking the temperature teaching of Warnes rather than that of Basta '963 is that the Examiner knows the answer that he wants. A person of ordinary skill has no such knowledge, and there is no reason to pick Warnes' temperature rather than Basta '963's temperature.

The position of the Examiner's Answer is that apparently there is no need to meet the requirements of MPEP 2143 and 2143.01, and instead it is appropriate to extract unrelated teachings from unrelated references, and to attempt to assemble them to form a facsimile of the invention.

On a somewhat related subject, at several points in the Examiner's Answer there is a suggestion that Applicant has addressed the references individually to "show nonobviousness" when the rejections are based on combinations of references. There are two responses. First, Applicant has no requirement to establish nonobviousness, until there the Examiner has set forth a prima facie case of obviousness. There has been no prima facie case of obviousness made. Second, at no point has Applicant addressed only individual references. Applicant has demonstrated repeatedly how the three references, with entirely different processes, are not technically and legally compatible, in addition to not teaching the claim limitations. It may be recalled that a fundamental tenet of patent law is that set forth in MPEP 2143.03, which provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art." If the Applicant demonstrates that there are claim limitations that are not taught or suggested by the prior art, as here, then a prima facie case of obviousness has not been established. In the present case, the prior art references, taken alone or in combination, do not teach "a gaseous fluoride or a gaseous iodide of the [zirconium, hafnium, or yttrium] modifying element" (bracketed material added), as recited in the claims.

Issue 2, claim 3

The combination of references does not teach the limitations of the parent claim 1, as discussed above. The limitation in question is not the airfoils limitation, but the nickel-

base superalloy limitation. The rejection depends upon the teachings of Smith '400, which relates to deposition of kappa aluminum oxide on cemented carbides, not nickel-base superalloys as recited in claim 3. There is no explanation of why a person skilled in the art would know to selectively apply narrow bits and pieces of the kappa aluminum oxide/cemented-carbide teachings of Smith '400 to the deposition of nickel aluminide on nickel-base superalloys, but not apply the overall teaching of depositing kappa aluminum oxide on cemented carbides.

Issue 2, claim 12

As to the limitations common with claim 1, the prior discussion is incorporated. The combination of references does not teach these limitations. As to the limitation on hafnium fluoride or zirconium fluoride, none of the references teaches either of these compounds, and particularly not in solid form as recited. As to the temperature range, Warnes does teach a temperature within the claim range. On the other hand, Basta '963 teaches a deposition temperature range of 820-900°C (1508-1652°F), see col. 7, lines 39-40, which is below the claim range. Once again, the only reason for picking the teaching of Warnes rather than that of Basta '963 is that the Examiner knows the answer that he wants. A person of ordinary skill has no such knowledge, and there is no reason to pick Warnes' temperature rather than Basta '963's temperature.

Issue 2, claim 14

The combination of references does not teach the limitations of the parent claim 12, as discussed above. The entire response in the Examiner's Answer is to identify a chemical formula for the claimed zirconium tetrafluoride, but there is no identification of a location in any of the applied prior art where there is any mention of zirconium tetrafluoride. Applicant still awaits some showing that any of the references teaches solid or gaseous zirconium tetrafluoride.

Issue 2, claim 15

The combination of references does not teach the limitations of the parent claim 12, as discussed above. The entire response in the Examiner's Answer is to identify a chemical formula for the claimed hafnium tetrafluoride, but there is no identification of a location in

any of the applied prior art where there is any mention of hafnium fluoride. Applicant still awaits some showing that any of the references teaches solid or gaseous hafnium tetrafluoride.

Issue 2, claim 16

The combination of references does not teach the limitations of the parent claim 12, as discussed above. None of the references teaches zirconium tetrafluoride, and none of the references teaches aluminum trifluoride or zirconium tetrafluoride in solid form. The attempt to do a molar conversion with forms that are not taught in the references is meaningless.

As to the viability of the calculations, Applicant did not get into that subject because the flaws were evident. The calculations are irrelevant because, among other reasons, there is no support for their assumptions and they do not attempt to calculate anything that is relevant to the claims. There is no submission of evidence to show that the gases behave as ideal gases, a key assumption that underlies all of the calculations. Further, there is not even an attempt to present a relevant calculation. Claim 16 recites a range for “the weight ratio of aluminum trifluoride to zirconium tetrafluoride”. There is no attempt to make that calculation set forth in the argument supporting the rejection of claim 16 (see page 11 of the Examiner’s Answer). There is a flawed attempt to calculate a molar ratio of Al/Zr, but the molar ratio of Al/Zr is not recited in the claims.

Issue 2, claim 17

The combination of references does not teach the limitations of the parent claim 12, as discussed above. Claim 17 incorporates the limitations of claim 12. As noted in the Appeal Brief, this rejection argues that it would be obvious to remove the solid aluminum in order to teach the limitations of claim 1, but then return the solid aluminum in order to teach the limitations of claim 17. As discussed in the Appeal Brief, the approach proposed in forming the rejection is not technically possible. The Examiner’s Answer argues that both would be present, but that is not possible. Specific special apparatus is postulated to perform such a method, but the prior art has no teaching of such a specific apparatus.

Issue 2, claim 18

The combination of references does not teach the limitations of the parent claim 12, as discussed above. Claim 18 incorporates the limitations of claim 12. As noted in the Appeal Brief, this rejection argues that it would be obvious to remove the solid modifying element in order to teach the limitations of claim 1, but then return the solid modifying element in order to teach the limitations of claim 1. There is no reason to do this. Specific special apparatus is postulated to perform such a method, but the prior art has no teaching of such a specific apparatus.

Issue 2, claim 19

The combination of references does not teach the limitations of the parent claim 12, as discussed above. Applicant also incorporates the prior discussion of the rejection of claim 8.

Issue 2, claim 20

The combination of references does not teach the limitations of the parent claim 12, as discussed above. Applicant also incorporates the prior discussion of the rejection of claim 9.

Issue 3, claims 1, 3, 5, 6, 9, and 11

The postulated substitution of aluminum chloride, as found in Speirs, for the ammonium chloride taught by Chang is unsupported speculation. Chang specifically teaches (col. 4, line 8-9) that its composition must include ammonium fluoride, not some general form of chemical class. Chang teaches a relatively high coating temperature of 1900-1950°F (col. 6, line 25).

Speirs teaches that its composition must include aluminum chloride and an ammonium halide such as ammonium fluoride (col. 3, lines 15-20, claims 1-2). Speirs teaches a relatively low coating temperature of 750-900°F (col. 3, line 40; claim 1), about 1000°F lower than in Chang.

There is no teaching in the art that ammonium fluoride and aluminum chloride are equivalent and produce the same result in a deposition process that uses a coating temperature of 1900-1950°F.

There is no teaching in the art that it would be either appropriate or operable to



Attorney Docket No. 13DV-13658/11593 (21635-0026)  
Application No. 09/670,189

substitute aluminum chloride, used in the low-temperature coating process of Speirs, for the ammonium chloride required in the high-temperature coating process of Chang. The MPEP and case law discussed in the Appeal Brief and hereinabove require some objective basis for adding aluminum chloride to the composition of Chang, and there is no such basis set forth or found in the art itself.

There is no teaching that would cause one to select the coating temperature taught by Chang over that taught by Speirs.

And there is certainly no teaching that the coating chemistry at 750-900°F, as taught by Speirs, is the same as that at 1900-1950°F, as taught by Chang.

Issue 3, claim 7

Again, there is no teaching in the art that the elemental form of the modifying element may be used with the solid fluoride.

Issue 3, claims 12, 15, 17, 19

The Examiner repeats the arguments presented in relation to claim 1, which are equally unconvincing and contrary to the legal requirements when presented here.

Issue 3, claim 18

The Examiner repeats the arguments presented in relation to claim 7, which are equally unconvincing and contrary to the legal requirements when presented here.

Summary and Conclusion

At this late stage, the Examiner's Answer propounds a new and unsupported theory of sec. 103 rejections. Specifically, it is argued that the applied prior art references do not stand for what they teach, but instead are cited only as examples of what is said to be "notoriously well known". And, not surprisingly, under this new theory the person attempting to create a hindsight rejection, the Examiner, gets to say what is "notoriously well known", regardless of what the applied prior art teaches. Applicant asks that the Board repudiate this approach and retain the present concept that a reference is limited to what it teaches.

Attorney Docket No. 13DV-13658/11593 (21635-0026)  
Application No. 09/670,189

Under Issues 1 and 2, there is no teaching of “a solid fluoride or a solid iodide of a modifying element as a source of the modifying element, the modifying element being selected from the group consisting of zirconium, hafnium, and yttrium, and combinations thereof”, as recited in claim 1 and in a narrower form in claim 12. Consequently, there can be no teaching of “a coating source comprising a solid aluminum halide, a solid fluoride or a solid iodide of a modifying element..., and a carrier gas”, as recited in claim 1.

Under Issue 3, the rejection is formed from references teaching two completely different coating processes--one a high-temperature process and the other a technically incompatible low-temperature process. There is no reason in the art to believe that the chemical constituents of the low-temperature process of Speirs will be needed or operable with the high-temperature coating process of Chang. The rejection is built on the assertion that ammonium chloride is equivalent to aluminum chloride in the two different processes, which is unsupported in the art. In fact, by requiring that both ammonium chloride and aluminum chloride must be present, Speirs ‘806 teaches that they are not equivalent. And again, there is an attempt to blur the distinction between ammonium chloride, as taught by Speirs ‘806, and ammonium fluoride, as taught by Chang ‘642

Applicant asks that the Board reverse the rejections.

Respectfully submitted,  
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